**Before the**
**Federal Communications Commission**
**Washington, D.C. 20554**

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| In the Matter of | ) | |
| | ) | |
| Updating References to Standards Related to the Commission's Equipment Authorization Program | ) | ET Docket No. 21-363 |
| | ) | |

**REPORT AND ORDER**

**Adopted: March 10, 2023** **Released: March 14, 2023**

By the Commission:

## I. INTRODUCTION

1. The equipment authorization program is one of the principal ways the Commission ensures that the radiofrequency (RF) devices people rely on every day, such as their cell phones and Wi-Fi devices, operate effectively without causing harmful interference and otherwise comply with the Commission's rules. By this Report and Order, we update our rules to incorporate four new and updated standards that are integral to equipment testing. By updating our rules to keep pace with significant developments in the standards-setting community, we ensure that our equipment authorization program relies on the latest guidance so that the public has confidence that today's advanced devices comply with our technical rules.

## II. BACKGROUND

2. Section 302 of the Communications Act of 1934, as amended (the Act), authorizes the Commission to make reasonable regulations governing the interference potential of devices that emit RF energy and can cause harmful interference to radio communications.[1] The Commission generally implements this authority by establishing technical rules for RF devices.[2] One of the primary ways the Commission ensures compliance with the technical rules is through the equipment authorization program for RF devices, procedures for which are codified in part 2 of our rules.[3] The Office of Engineering and Technology (OET) administers the day-to-day operation of the equipment authorization program.[4]

3. Part 2 of the Commission's rules provides two different approval procedures for RF devices subject to equipment authorization—certification and Supplier's Declaration of Conformity

[1] 47 U.S.C. § 302a(a).

[2] For example, part 15 of the Commission's rules sets forth the technical requirements for unlicensed devices; parts 22, 24, and 27 set forth the technical requirements for transmitters used in various commercial mobile radio services; and part 90 specifies the technical requirements for transmitters used in the private land mobile radio services. *See* 47 CFR pts. 15, 22, 24, 27, and 90, respectively.

[3] *See* 47 CFR pt. 2, subpt. J.

[4] *See* 47 CFR § 0.241(b) (delegating such authority to OET). As part of its administration of the equipment authorization rules, OET has developed a substantial body of supplemental guidance that is available via public notices and in our online Knowledge Database (KDB). Links to all of these can be found at the OET Laboratory Division's Equipment Authorization Page, https://www.fcc.gov/engineering-technology/laboratory-division/general/equipment-authorization; and the Knowledge Database webpage, http://www.fcc.gov/labhelp.

(SDoC).[5] While both processes involve laboratory testing to demonstrate compliance with Commission requirements, testing associated with certification must be performed by an FCC-recognized accredited testing laboratory.[6] Additionally, part 68 of the Commission's rules sets forth requirements to ensure that terminal equipment can be connected to the telephone network without harming its functioning and for the compatibility of hearing aids and land-line telephones so as to ensure that, to the fullest extent made possible by technology and medical science, people with hearing loss have equal access to communications services.[7]

4. Equipment testing is central to the equipment authorization program in ensuring that RF devices comply with Commission rules.[8] Acknowledging the best practices widely followed by industry, the Commission's equipment authorization rules often incorporate by reference[9] various standards[10] established by standards-setting bodies, including, but not limited to, the American National Standards Institute (ANSI), Accredited Standards Committee C63 (ANSC C63);[11] the International Organization for Standardization; and the International Electrotechnical Commission.[12] Use of these standards is intended to ensure the integrity of the measurement data associated with an equipment authorization. Among other

[5] 47 CFR § 2.901. Certification is a more rigorous approval process for RF devices with the greatest potential to cause harmful interference to other radio operations. A grant of certification is an equipment authorization issued by an FCC-recognized telecommunications certification body (TCB) based on an evaluation of the supporting documentation and test data submitted to the TCB. 47 CFR § 2.907. SDoC allows a device to be marketed on the basis of testing performed in accordance with a Commission-approved methodology by the manufacturer, assembler, importer, or seller itself without the need to submit an application to a TCB. 47 CFR § 2.906.

[6] 47 CFR § 2.948(a).

[7] *See* 47 CFR § 68.1. Terminal equipment is defined as communications equipment located on customer premises at the end of a communications link, used to permit the stations involved to accomplish the provision of telecommunications or information services. 47 CFR § 68.3. In furtherance of these goals, part 68 includes unique, but similar, rules related to equipment approval, TCB review, and laboratory testing. 47 CFR pt. 68, subpt. D.

[8] Section 2.947 of the Commission's rules requires test data be measured in accordance with one of three types of standards and measurement procedures, including "[t]hose acceptable to the Commission and published by national engineering societies such as the Electronic Industries Association, the Institute of Electrical and Electronic[s] Engineers, Inc., and the American National Standards Institute." 47 CFR § 2.947(a)(2).

[9] Incorporating external standards within the Commission's rules has been a longstanding practice that reflects our desire, where appropriate and consistent with the Administrative Procedure Act and other statutes, to harmonize the rules with international standards and aligns the Commission's rules with general federal agency guidance which urges government agencies to use industry-developed standards rather than develop their own. *See, e.g., Procedure for measuring electromagnetic emissions from digital devices*, GEN Docket No. 89–44, Further Notice of Proposed Rule Making, 6 FCC Rcd 600, 601, paras. 7-8 (1991); *see also* OMB Circular A-119, Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities (updated Jan. 27, 2016), *available at* https://www.whitehouse.gov/omb/information-for-agencies/circulars/.

[10] *See*, *e.g.*, 47 CFR §§ 2.910, 2.950, 15.38.

[11] American National Standards Institute, Accredited Standards Committee C63 is a standards organization that is responsible for developing electromagnetic compatibility (EMC) measurement standards and testing procedures. ANSC C63's standards are published by the American National Standards Institute under the ANSI nomenclature. The Commission's rules have referenced various versions of ANSC C63-originated standards for more than a quarter century.

[12] The International Organization for Standardization (ISO) is an independent, non-governmental international organization that develops voluntary international standards. *See* https://www.iso.org/home.html. The International Electrotechnical Commission (IEC) develops international standards for all electrical, electronic, and related technologies. *See* https://www.iec.ch.

things, such standards provide procedures for conducting measurements at testing facilities[13] and specify the conditions expected in the testing environment.[14]

## III. DISCUSSION

5. Standards bodies periodically update existing standards or adopt new standards to reflect best practices in response to advancements in technologies and measurement capabilities. The Commission initiated this proceeding in response to such developments.[15] Specifically, in the *NPRM*, we addressed two petitions filed by ANSC C63: one seeking to incorporate by reference into our rules a new standard pertaining to test site validation;[16] and one proposing to incorporate by reference a newer version of a currently referenced standard that addresses a variety of compliance testing requirements.[17] We also proposed to clarify the status of two standards on which OET previously sought comment.[18]

### A. Incorporation by Reference

6. Incorporation by reference (IBR) is the process that federal agencies use when referring to materials published elsewhere to give those materials the same force and effect of law in the Code of Federal Regulations (CFR) as if the materials' text had actually been published in the *Federal Register.*[19] By using IBR, we are able to give effect to technical instructions, testing methodologies, and other process documents that are developed and owned by standards development organizations. Referencing these documents in our rules in accordance with guidelines established by the Office of the Federal Register substantially reduces the volume of material that we otherwise would have to publish in the *Federal Register* and the CFR. Once we have completed any necessary notice-and-comment rulemaking proceedings and determined based on the record that any standards we adopt are sound and appropriate, we need only update the references to the standards in our rules.

#### 1. Availability of materials

7. As an initial matter, we address a comment regarding the IBR process in general as opposed to the merits of the particular standards under consideration. Specifically, Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC (Joint Commenters) express concerns related to "the public availability and accessibility of documents that are proposed to be incorporated by reference into law."[20] Joint Commenters claim that the materials subject to IBR should be broadly available to members of the public on a free and unrestricted basis (e.g., in a format that can be easily copied without cost), that the standards documents were not made available in this manner during the rulemaking process, and that our

[13] *Updating References to Standards Related to the Commission's Equipment Authorization Program; Modifying the Equipment Authorization Rules to Reflect the Updated Versions of the Currently Referenced ANSI C63.4 and ISO/IEC 17025 Standards*, ET Docket Nos. 21-363, 19-48, Notice of Proposed Rulemaking, FCC 22-3, at 3-4, para. 8 (Jan. 25, 2022) (*NPRM*).

[14] *NPRM* at 4, para. 8.

[15] *See NPRM.*

[16] *NPRM* at 5-7, paras. 11-13.

[17] *NPRM* at 7-8, paras. 14-16. We defer for later consideration proposals in the *NPRM* not addressed herein.

[18] *NPRM* at 9-11, paras. 18-24; *see also Office of Engineering and Technology Seeks Comment on Modifying the Equipment Authorization Rules to Reflect the Updated Versions of the Currently Referenced ANSI C63.4 and ISO/IEC 17025 Standards*, Public Notice, ET Docket No. 19-48, 34 FCC Rcd 1904 (OET 2019) (*Standards Update Notice*).

[19] Office of the Federal Register, IBR Handbook 1 (July 2018), *available at* https://www.archives.gov/files/federal-register/write/handbook/ibr.pdf; *see* 5 U.S.C. § 552(a)(1) (providing that "matter reasonably available to the class of persons affected thereby is deemed published in the Federal Register when incorporated by reference therein with the approval of the Director of the Federal Register").

[20] Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC Comments at 3.

failure to do so was "illegal and arbitrary."[21] Joint Commenters are concerned that the accessibility of the relevant materials is often limited by what it characterizes as onerous conditions put in place by the associated private entities.[22] It asks that we "restart" the rulemaking process with "everyone having free access and the right to copy" the standards under consideration.[23]

8. We recognize that the benefit of using the IBR process to incorporate standards that are developed and hosted by professional standards development organizations into the rules – that we can "draw on the expertise and resources of private sector standard developers to serve the public interest"[24] – is typically accompanied with limitations on how those standards are accessed due to the standard developers' intellectual property interests in those materials. For example, the National Archives and Records Administration, Office of the Federal Register (NARA OFR),[25] in its final rule addressing incorporation by reference, concluded that a requirement to make available, for free, all materials incorporated by reference into the CFR would "compromise the ability of regulators to rely on voluntary consensus standards, possibly requiring them to create their own standards, which is contrary to the [National Technology Transfer and Advancement Act of 1995] and the OMB Circular A-119."[26] We therefore disagree with the sweeping nature of Joint Commenters' claims. The requirements for availability as suggested by Joint Commenters would be inconsistent with established government-wide guidance and practice for IBR and would potentially burden test laboratories, manufacturers, and consumers if we were unable to recognize state-of-the-art technical standards adopted and frequently updated through the consensus-driven standards development process.

9. We further conclude that the information we provided about the standards we proposed to adopt, including the means by which individuals could inspect copies of those standards, was sufficient to satisfy the requirements for incorporation by reference as set forth in the Administrative Procedure Act (APA) and implemented by NARA OFR in that we made the information reasonably available to the class of persons affected thereby.[27] In the summary of the *NPRM* published in the Federal Register, the Commission provided sources through which interested persons could obtain copies of the relevant standards and stated that a copy of each standard was available for inspection at the FCC's main office.[28] Each of the relevant standards has remained available throughout the rulemaking proceeding in the manner described in the *NPRM*. In addition, Commission staff further acted consistent with guidance from the Administrative Conference of the United States (ACUS) to "take steps to promote the availability of incorporated materials within the framework of existing law"[29] by communicating with the

[21] *Id*. at 3-4.

[22] *Id*. at 9-10.

[23] *Id.* at 14.

[24] Administrative Conference of the United States, Administrative Conference Recommendation 2011-5 Incorporation by Reference at 1 (2011) https://www.acus.gov/sites/default/files/Recommendation-2011-5-Incorporation-by-Reference.pdf. (ACUS Recommendation 2011-5).

[25] Congress gave authority to the Director of the Federal Register to determine whether a proposed incorporation by reference serves the public interest. *See* 5 U.S.C. 552(a); 1 CFR pt. 51.

[26] 79 Fed. Reg. 66267, 66268 (Nov. 7, 2014). *See also*, U.S. Office of Management and Budget, Revised Circular No. A-119 (1998) https://www.whitehouse.gov/wp-content/uploads/2017/11/Circular-119-1.pdf (OMB Circular A-119) discussing "federal participation in the development and use of voluntary consensus standards and in conformity assessment activities."

[27] 5 U.S.C. § 552(a).

[28] Updating References to Standards Related to the Commission's Equipment Authorization Program, 87 Fed. Reg. 15180, 15186 (Mar. 17, 2022) (Proposed Rule).

[29] ACUS Recommendation 2011-5 at 3.

relevant standards bodies to encourage availability of materials in an online read-only format[30] and, prior to publication of the NPRM in the Federal Register, confirmed that each standard was available for purchase by any interested party.

10. In addressing the proposed rulemaking, Joint Commenters specifically address the terms by which interested parties may purchase copies of the standards. As an initial matter, we note there is nothing unusual about a direct purchase option being available as part of the IBR process.[31] However, we disagree with the Joint Commenters' assertion that "[i]n order to comment on [the *NPRM*], we would have to each expend $589" by purchasing copies of the standards.[32] Direct purchase was only one of the means of obtaining information about the standards under consideration. In this case, at least two of these standards were available online in a read-only format without cost,[33] abstracts and information related to the standards are widely available without restriction,[34] and the Commission, per its longstanding practice, ensured that the materials were available for in-person inspection.[35] We are not aware of any party that actually desired to inspect the materials but was unable to do so because of difficulties in traveling to the specified inspection site. Moreover, none of the comments filed in the proceeding that were related to the technical merits of the proposed standards incorporations identified any impediments to finding and accessing the standards under consideration. Based on these facts, and the established policy, we conclude that the materials proposed to be incorporated by reference have been made reasonably available to the class of person affected, consistent with 5 U.S.C. § 552(a) and the policies and procedures under 1 CFR part 51.[36] We therefore disagree with Joint Commenters' assertion that parties could not "see" or "have access to the text of the standards" such that they could not meaningfully participate in the rulemaking process.[37]

11. We are also confident that interested parties will have sufficient opportunities to access the standards on an ongoing basis once we have incorporated them into our rules. The FCC will make a copy of the standards available for public inspection upon request, and NARA OFR makes legal record copies of all standards that have been incorporated by reference "available for public inspection and limited photo-copying."[38] In addition to continued opportunities to purchase copies through the standards

[30] Commission staff confirmed that two of the standards were available online in a read only format: ISO/IEC 17025:2017(E) and ISO/IEC 17011:2017. *See* American National Standards Institute, *IBR Standards Portal*, https://ibr.ansi.org/Standards/iso6.aspx (last visited Feb. 14, 2023).

[31] The Commission has acted in a manner "[c]onsistent with the National Science and Technology Council's acknowledgment that 'the text of standards and associated documents should be available to all interested parties on a reasonable basis, which may include monetary compensation where appropriate.'" ACUS Recommendation 2011-5 at 3 (quoting Subcommittee on Standards, National Science and Technology Council, Executive Office of the President, Federal Engagement in Standards Activities to Address National Priorities: Background and Proposed Recommendations 11 (Oct. 10, 2011)).

[32] Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC Comments at 4.

[33] ISO/IEC 17025:2017(E) and ISO/IEC 17011:2017. *See* American National Standards Institute, *IBR Standards Portal*, https://ibr.ansi.org/Standards/iso6.aspx (last visited Feb. 14, 2023).

[34] *See* Institute of Electrical and Electronics Engineers, *Xplore*, https://ieeexplore.ieee.org/Xplore/home.jsp (last visited Feb. 14, 2023).

[35] *See* Proposed Rule, 87 Fed. Reg at 15186.

[36] Our means of accessing the actual text of the standards was provided in addition to the statement of the substance of the proposed rule and description of the subjects and issues in the *NPRM*, which was provided consistent with 5 U.S.C. § 553(b)(3). *See NPRM*, Appendix A; *see generally NPRM*, "Discussion" section.

[37] Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC Comments at 8.

[38] National Archives Office of the Federal Register, *Code of Federal Regulations Incorporation by Reference*, https://www.archives.gov/federal-register/cfr/ibr-locations.html (last visited Feb. 14, 2023).

development organizations and other online sources, we anticipate that all of the standards, once adopted, will be made available to the public through the on-line reading rooms that the standards bodies maintain. For example, ANSI maintains an "Incorporated by Reference Portal" at www.ibr.ansi.org that it describes as "a one-stop mechanism for access to standards that have been incorporated by reference in the U.S. Code of Federal Regulations (CFR)," and which provides access to these documents at no cost in "read only" format for online reading.[39] Collectively, these resources are more than sufficient to permit interested parties to accomplish the objectives identified by the Joint Commenters, including use of the standards by people who fix and evaluate equipment and make new things for understanding how the devices work and identifying whether they are working properly.[40] While we recognize that each of these access mechanisms may have individual limitations (e.g., cost, travel for in-person inspection, limitations on how the materials may be downloaded, shared, or otherwise used) that would not exist if the standards were made available "on a public website without charge, and without limitation of use" as the Joint Commenters request,[41] none of these limitations would prevent interested parties from accessing and using the standards we are adopting. For these reasons, we explicitly reject the Joint Commenters' assertion that our actions will be inconsistent with established law and policy balancing the public interest in promoting the development of and reliance on voluntary standards against the need for public access to any such standards incorporated by reference by federal agencies.

### 2. Accessing Materials

12. The OFR has regulations concerning incorporation by reference.[42] These regulations require that, for a final rule, agencies must discuss in the preamble to the final rule the way in which materials that the agency incorporates by reference are reasonably available to interested parties, and how interested parties can obtain the materials.[43] Additionally, the preamble to the final rule must summarize the material.[44]

13. Sections 2.910 and 2.948 of the rules adopted herein incorporate by reference the following standard: "American National Standard Validation Methods for Radiated Emission Test Sites; 1 GHz to 18 GHz" (ANSI C63.25.1-2018). The ANSI C63.25.1-2018 standard consolidates guidance from existing standards to provide test site validation procedures from 1 GHz to 18 GHz. Incorporation of this standard will provide an additional option for test site validation of radiated emission measurements from 1 GHz to 18 GHz, while continuing to provide for the validation option currently specified in our rules.[45] Interested persons may purchase a copy of ANSI C63.25.1 from the sources provided in 47 CFR 2.910. A copy of the standard may also be inspected at the FCC's main office.

14. Sections 15.31 and 15.38 of the rules adopted herein incorporate by reference the following standard: "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices" (ANSI C63.10-2020). The ANSI C63.10-2020 standard is an update to a standard previously incorporated by reference within our rules and it addresses "the procedures for testing the compliance of a wide variety of unlicensed wireless transmitters."[46] Interested persons may purchase a

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[39] American National Standards Institute, *About the ANSI Incorporated by Reference (IBR) Portal*, https://ibr.ansi.org/ (last visited Feb. 2, 2023).

[40] Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC Comments at 6-7.

[41] Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC Comments at 12.

[42] 1 CFR pt. 51.

[43] 1 CFR § 51.5(b)(2).

[44] 1 CFR § 51.5(b)(3).

[45] *See* paras. 17-18, *infra.*

[46] *See* para.21, *infra.*

copy of ANSI C63.10-2020 from the sources provided in 47 CFR 2.910. A copy of the standard may also be inspected at the FCC's main office.

15. Sections 2.910, 2.948, 2.949, 2.962, and 68.62 of the rules adopted herein incorporate by reference the following standard: "General requirements for the competence of testing and calibration laboratories" (ISO/IEC 17025:2017(E)). The ISO/IEC 17025:2017(E) standard is an update to the standard currently incorporated by reference within our rules that replaces certain prescriptive requirements with performance-based requirements for test laboratory accreditation. Interested persons may purchase a copy of ISO/IEC 17025:2017(E) from the sources provided in 47 CFR 2.910.[47] A copy of the standard may also be inspected at the FCC's main office.

16. Sections 2.910 and 2.948 of the rules adopted herein incorporate by reference the following standard: "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz, Amendment 1: Test Site Validation" (ANSI C63.4a-2017).[48] The ANSI C63.4a-2017 standard introduces modifications to the normalized site attenuation procedures for validating radiated test sites for use in the 30 MHz to 1 GHz frequency range. Interested persons may purchase a copy of ANSI C63.4a-2017 from the sources provided in 47 CFR 2.910.[49] A copy of the standard may also be inspected at the FCC's main office.

### B. "American National Standard Validation Methods for Radiated Emission Test Sites; 1 GHz to 18 GHz" (ANSI C63.25.1-2018)

17. In consideration of an ANSC C63 petition for rulemaking,[50] in the *NPRM*, the Commission proposed to incorporate by reference the standard titled "American National Standard Validation Methods for Radiated Emission Test Sites; 1 GHz to 18 GHz" (ANSI C63.25.1-2018), into the test site validation requirements of section 2.948(d) of the Commission's rules.[51] Under our current rules, measurement facilities that make radiated emission measurements from 30 MHz to 1 GHz must comply with the site validation requirements in ANSI C63.4-2014 (clause 5.4.4), and, for radiated emission measurements from 1 GHz to 40 GHz, the site validation requirements in ANSI C63.4-2014 (clause 5.5.1 a) 1))[52] apply.[53] The proposal would incorporate ANSI C63.25.1-2018 in order to provide an additional option for test site validation of radiated emission measurements from 1 GHz to 18 GHz.[54]

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[47] *See* paras. 28-29, *infra*.

[48] The *NPRM* erroneously referred to ANSI C63.4a-2017 as "*Addendum to the* American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz, Amendment 1: Test Site Validation." (emphasis added). The title has been corrected in this Order.

[49] *See* paras. 33-35, *infra*.

[50] Petition of the American National Standards Institute (ANSI), Accredited Standards Committee C63 Requesting adoption of ANSI C63.25.1-2018 into the Commission's Part 2 rules for EMC test site validation from 1 GHz – 18 GHz (filed Mar. 6, 2020) https://www.fcc.gov/ecfs/filing/10306816406385 (C63.25.1 Petition). On March 30, 2021, ANSC C63 filed an Erratum correcting the caption as originally filed to properly reflect the 2018 adoption of the standard instead of 2019 as captioned in the original filing. Petition for Rulemaking - - Erratum, https://ecfsapi.fcc.gov/file/1033097191908/c63.25%2C1%20erratum%20FCC.pdf.

[51] *NPRM* at 6, 15-16, para. 13, Appx. A (proposed §§ 2.910(c)(2), 2.948(d)).

[52] The ANSI requirements are similar to the site validation criteria called out in CISPR (Comite International Special des Perturbations Radioelectriques (International Special Committee on Radio Interference)) 16-1-4:2010-04. CISPR 16-1-4:2010-04: "Specification for radio disturbance and immunity measuring apparatus and methods—Part 1-4: Radio disturbance and immunity measuring apparatus—Antennas and test sites for radiated disturbance measurements," Edition 3.0, 2010-04 (CISPR 16-1). CISPR is a voluntary standards-making organization under the auspices of the International Electrotechnical Commission (IEC). CISPR adopts recommendations for limits and measurement methods to control radio interference generated by computers and various other devices.

18. As noted in the *NPRM*, the C63.25.1-2018 standard consolidates guidance from existing standards to provide test site validation procedures from 1 GHz to 18 GHz.[55] For example, the C63.25.1-2018 standard includes a CISPR 16 method known as the site voltage standing wave ratio (SVSWR) approach to validate test sites for frequencies above 1 GHz, which measures responses between antennas while varying their distances. This method is included in the standard currently referenced in the Commission's rules, ANSI C63.4-2014 (clause 5.5.1 a) 1)).[56] Additionally, C63.25.1-2018 introduces the option of using a new effective test validation method called time domain site validation (TDSV), the benefits of which are cited by ANSC C63 in the C63.25.1 Petition.[57] The Commission tentatively concluded that incorporating C63.25.1-2018 in our rules by reference would have the benefit of providing the availability of TDSV as an additional option, while continuing to allow use of the procedures currently described in section 2.948(d) of the Commission's rules for test site validation of radiated emission measurements from 1 GHz to 18 GHz.[58] While the Commission tentatively concluded that the entire standard should be incorporated by reference, it also asked whether any procedures or techniques included in ANSI C63.25.1-2018 would not be appropriate for demonstrating compliance with the Commission's equipment authorization rules.[59] Finally, because the Commission proposed to incorporate ANSI C63.25.1-2018 as an option to an already existing requirement, it tentatively concluded that there would be no need to designate a transition period.[60]

19. Several commenters expressed support for adopting ANSI C63.25.1-2018 in full.[61] Information Technology Industry Council, while suggesting that C63.25.1-2018 be applied immediately, also suggests that we continue to accept measurements that reference C63.4-2014 for two years.[62] Cisco Systems Inc. (Cisco) supports adopting the proposed references to ANSI C63.25.1-2018; however, it asks the Commission to make some specific clarifications regarding the application of the standard.[63] Specifically, Cisco encourages the Commission to clarify that site voltage standing wave ratio (SVSWR) and time domain site validation (TDSV) are the only acceptable methods of site verification under ANSI C63.25.1-2018.[64] Additionally, Cisco states that as both the SVSWR and TDSV validation methods require some calibration, ANSI C63.5-2017 does not appear to add any value as a reference.[65] Thus,

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[53] 47 CFR § 2.948(d).

[54] *NPRM* at 6-7, 16, para. 13, Appx. A (proposed § 2.948(d)).

[55] *NPRM* at 6, para. 12.

[56] *See* para. 8, *infra*.

[57] *NPRM* at 6, para. 13; C63.25.1 Petition at 3.

[58] *NPRM* at 6-7, para. 13.

[59] The Commission also asked whether the standard would be appropriate for determining compliance with any other rule sections. *NPRM* at 7, para. 13.

[60] *Id.*

[61] Comments of American Association for Laboratory Accreditation (A2LA); American National Standards Committee C63 (ANSC C63); Information Technology Industry Council (ITI).

[62] Information Technology Industry Council (ITI) Comments at 1.

[63] Cisco Comments at 2.

[64] Cisco notes that ANSI C63.25.1-2018 provides that "test sites 'used in the frequency range 1 GHz to 18 GHz *can* be verified using one of the two methods listed in a) [CISPR 16/SVSWR] and b) [TDSV].'" *Id.* (emphasis added). Cisco contends that the use of the phrase "can be verified" could be interpreted to allow the use of other test-site verification methods and "encourage[s] the Commission to clarify that the specified methods are the only acceptable means of site verification." Cisco Comments at 2.

[65] *Id.*

Cisco suggests that the FCC simply state that all appropriate devices (antennas, positioners, etc.) must be validated in a manner that ensures they satisfy the necessary characteristics defined by each method.[66]

20. We believe, and the record does not suggest otherwise, that the Commission was correct to tentatively conclude that incorporating ANSI C63.25.1-2018 among the procedures currently described in section 2.948(d) of the Commission's rules would serve the public interest by providing useful options and potential benefits for test site validation of radiated emission measurements from 1 GHz to 18 GHz. As the Commission noted when discussing the *C63.25.1 Petition*, while the TDSV and SVSWR methods are similar in that both measure responses between antennas, TDSV does not require varying the distance between antennas, providing a reduction in the sensitivity of test results caused by small test setup changes at higher frequencies where the associated wavelengths are relatively short.[67] This feature and other aspects of the TDSV method introduce process efficiency improvements that could result in less time to perform the validation. Accordingly, we are incorporating the complete ANSI C63.25.1-2018 standard into section 2.948(d) of our rules.[68] We clarify that incorporating ANSI C63.25.1-2018 into section 2.948(d), as amended herein, provides two options of test site validation procedures for radiated emission measurements from 1 GHz to 18 GHz: SVWSR and TDSV.[69] We are not adopting Cisco's suggestion that we remove references to ANSI C63.5-2017 from the version of the C63.25.1-2018 standard incorporated into our rules. References to the use of ANSI C63.5-2017 for the calibration of measurement and reference antennas are prevalent among the ANSI standards already incorporated by reference in the Commission's rules.[70] Finally, we see no need to adopt a transition period for the use of ANSI C63.25.1-2018 as it includes the test site validation option provided by the previous ANSI C63.4-2014.[71]

### C. "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices" (ANSI C63.10-2020)

21. In the *NPRM*, in response to a petition filed by ANSC C63, the Commission proposed to incorporate by reference ANSI C63.10-2020, "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices," into our rules to replace existing references to ANSI C63.10-2013.[72] The ANSI C63.10-2020 standard was approved by ANSI on September 10, 2020, and updates the measurement procedures set forth in ANSI C63.10-2013, which is currently referenced in sections 2.910,

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[66] *Id.*

[67] "Overall, ANSC C63 asserts that TDSV improves measurement repeatability, provides additional information on the test site, and 'reduces the sensitivity of the test results caused by small test setup changes due to statistical post processing incorporated in the TDSV method,' while requiring less time to perform the validation." *NPRM* at 6, para. 12.

[68] *See* Appx. A, 47 CFR § 2.948(d).

[69] As Cisco notes, SVSWR and TDSV are the only acceptable methods of site verification under ANSI C63.25.1-2018. In this regard, we note that section 2.948(d), proposed in the *NPRM*, included references to both ANSI C63.4-2014 and ANSI C63.25.1-2018. *See NPRM*, Appx. A, 47 CFR § 2.948(d). Upon further consideration, as ANSI C63.25.1-2018 includes the SVSWR method of ANSI C63.4-2014, the reference to ANSI C63.4-2014 is no longer required io the rule and it will be removed. *See* Appx. A, 47 CFR § 2.948(d).

[70] *E.g.*, ANSI C63.4-2014 and C63.10-2013; *see* 47 CFR § 2.910. Such references also appear in OET Lab guidance. For example, KDB 822428, published on August 11, 2017, specifies that ANSI C63.5-2017 be used to calibrate antennas for use in performing radiated emission measurements and normalized site attenuation (NSA) measurements.

[71] Thus, we are not adopting ITI's suggestion to only accept measurements made in accordance with C63.4-2014 for two more years. *See also supra* n.55.

[72] *NPRM* at 8, para. 16. Petition of the American National Standards Institute, Accredited Standards Committee, C63 Requesting adoption of ANSI C63.10-2020 into the Parts 2 and 15 Rules for Compliance Testing Of Unlicensed Radio Devices (filed Feb. 4, 2021), https://www.fcc.gov/ecfs/filing/10204284915782 (*C63.10 Petition*).

2.950, 15.31, and 15.38 of the Commission's rules.[73] The standard addresses "the procedures for testing the compliance of a wide variety of unlicensed wireless transmitters . . . including, but not limited to, remote control and security unlicensed wireless devices, frequency hopping and direct sequence spread spectrum devices, anti-pilferage devices, cordless telephones, medical unlicensed wireless devices, Unlicensed National Information Infrastructure (U-NII) devices, intrusion detectors, unlicensed wireless devices operating on frequencies below 30 MHz, automatic vehicle identification systems, and other unlicensed wireless devices authorized by a radio regulatory authority."[74]

22. The Commission tentatively concluded that it would be appropriate to simply replace the existing standard references with references to the new standard, subject to a two-year or other appropriate transition period.[75] The Commission asked whether any procedures or techniques included in the standard would not be appropriate for use in the context of demonstrating compliance with the Commission's equipment authorization rules.[76] Similarly, the Commission also asked which, if any, of the Commission rules that do not currently reference ANSI C63.10-2013 should reference ANSI C63.10-2020.[77] Finally, the Commission asked whether a transition period during which either version of ANSI C63.10 could be used would be appropriate.[78]

23. Several commentors support adopting the updated standard. National Technical Systems states that "it is assumed that if C63.4a is not adopted then adoption of ANSI C63.10-2020 would exclude the normative reference to ANSI C63.4a."[79] ITI supports the adoption of the standard in full, while suggesting that C63.10-2020 be applied immediately while accepting reference to C63.10-2013 for up to two years in order to "allow test labs and manufacturers adequate time to procure and complete necessary actions."[80] It also notes that products that were assessed and released in accordance with the previous standard should not be required to be assessed to C63.10-2020 unless the product changes or needs an updated certification.[81] Cisco, A2LA, and ANSI C63 support adopting the new standard in full and offer no further comment.[82]

24. The new edition of ANSI C63.10-2020 not only provides updates to the methods in the standard but also adds new methods. We find that it is necessary at this time to update sections 2.910, 2.950, 15.31(a)(3), and 15.38(g)(3) to incorporate by reference ANSI C63.10-2020. This update to our rules will address advancements in compliance testing methods that have accompanied the growth of wireless devices and ensure the continued integrity of the relevant measurement data. With regard to the normative reference to ANSI C63.4a-2017, we do not find it necessary to exclude it. We note that C63.10-2020 refers to ANSI C63.4a-2017 for 0.3 GHz to 1 GHz (NSA) test site validation procedures in lieu of the NSA validation methods contained in ANSI C63.4-2014. The C63.10-2020 standard includes ANSI C63.4a-2017 in its list of normative references, in Clause 5.2 when specifying an appropriate

[73] 47 CFR §§ 2.910(c)(2), 2.950(g), 15.31(a)(3), 15.38(g)(3).

[74] Daniel Hoolihan, *The American National Standards Committee on EMC – C63® - An Update on Recent Standards Development Activities* (June 30, 2021), https://incompliancemag.com/article/the-american-national-standards-committee-on-emc-c63/.

[75] *NPRM* at 8, para. 16.

[76] *Id*.

[77] *Id*.

[78] *Id*.

[79] David W. Bare Comments at 1 (rec. Feb. 17, 2022) (filed on behalf of National Technical Systems) Comments; *see also infra* para. 24.

[80] ITI Comments at 2.

[81] ITI Comments at 2.

[82] Cisco Comments at 3; ANSC C63 Comments at 2; A2LA Comments at 1.

radiated test site for performing the compliance measurements, and in Clause 6.5.2 when specifying permissible distances between antennas when performing radiated tests. The C63.10-2020 standard is a North American standard rather than a U.S. standard and thus accommodates both Canadian and U.S. regulations. Canada has already recognized ANSI C63.4a-2017 in its regulations but, prior to this proceeding, the U.S. has not. The reference to ANSI C63.4a-2017 in the standard contains a footnote reference to 47 CFR 15.31 in recognition that ANSI C63.4a-2017 may not be adopted by the U.S. regulators. To accommodate the transition to this new standard, and as proposed in the *NPRM* and supported by ITI,[83] we will permit the use of either ANSI C63.10-2013 or ANSI C63.10-2020 for a period of two years following the effective date of the rules adopted in this Order. The record supports this time period as sufficiently reasonable for the affected entities to procure the necessary equipment and implement the required changes.

### D. Other Standards

25. In addition to addressing new specific incorporation by reference proposals, the Commission in the *NPRM* made tentative proposals and sought to refresh the record obtained in response to the *Standards Update Notice*[84] that was previously issued by OET. Further, the Commission made proposals intended to "clean up" the rules by addressing several obsolete references and asked whether any additional similar rules changes would be appropriate.[85]

#### 1. "General requirements for the competence of testing and calibration laboratories" (ISO/IEC 17025:2017(E))

26. Measurement data intended to demonstrate compliance with certain Commission requirements must be obtained from an accredited testing laboratory.[86] Currently, sections 2.910, 2.948, 2.949, 2.962, and 68.162 incorporate by reference ISO/IEC 17025:2005(E) for the requirements related to test laboratory accreditation.[87] In November 2017, ISO/IEC published ISO/IEC 17025:2017(E)—a new version of the test laboratory accreditation standard currently referenced in our rules.[88] In the *Standards Update Notice*, OET proposed to update the Commission's rules by replacing references to ISO/IEC 17025:2005(E) with references to ISO/IEC 17025:2017(E).[89]

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[83] We note that, as is our general practice, the adoption of new rules does not require re-authorization of devices that have previously received an equipment authorization.

[84] *See Standards Update Notice*, 34 FCC Rcd 1904. In that Public Notice, OET sought comment on updating the Commission's rules to reflect recent changes to two standards: ISO/IEC 17025:2017(E), "General requirements for the competence of testing and calibration laboratories," and ANSI C63.4a-2017, "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz, Amendment 1: Test Site Validation." *Id.* at 1904.

[85] *NPRM* at 11-12, paras. 25-26.

[86] 47 CFR § 2.948(a). Laboratory accreditation bodies assess a variety of laboratory aspects, including the technical competence of staff; the validity and appropriateness of test methods; traceability of measurements and calibration to national standards; suitability, calibration, and maintenance of the testing environment; sampling, handling, and transportation of test items; and quality assurance of test and calibration data.

[87] 47 CFR §§ 2.910(d)(2), 2.948(e), 2.949(b)(2), 2.962(c)(3-(4), (d)(1), 68.162(c)(3)-(4), (i)(1)(i).

[88] *Standards Update Notice*, 34 FCC Rcd at 1905 & n.8 (citing *ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories*, ISO (2017), *available at* https://www.ukas.com/download/brochures/ISO-17025-Brochure_EN_FINAL.pdf). In addition to adding a definition of "laboratory," the new version replaces certain prescriptive requirements with performance-based requirements and allows for greater flexibility in satisfying the standard's requirements for processes, procedures, documented information, and organizational responsibilities. *Id.*

[89] *Standards Update Notice*, 34 FCC Rcd at 1905-06.

27. In the *NPRM*, the Commission proposed to incorporate by reference into our rules ISO/IEC 17025:2017(E) in its entirety, including Clause 8.1 - Option A and Option B.[90] Options A and B were specifically addressed in light of comments made in response to the *Standards Update Notice.* The Commission tentatively concluded that the flexibility of having both options merits that both options should be included when incorporating ISO/IEC 17025:2017(E) into our rules.[91] Additionally, in the *NPRM*, the Commission discussed issues related to the passage of time since the release of the *Standards Update Notice*, and, noting the two year re-accreditation process, it tentatively proposed a two-year transition to the new standard instead of the originally proposed three-year period.[92]

28. A2LA supports the updated standard and claims that it "provides a greater emphasis on impartiality, transparency, and the complaint processes;" takes a process approach and is outcome-focused;" "is less prescriptive and less procedure-burdened;" and "provides laboratories with greater flexibility as the standard is now underpinned with a risk-based approach to the processes."[93] A2LA began transitioning its organization to the new standard in November 2017 in order to meet the International Laboratory Accreditation Cooperation mandate requiring completion of the transition by June 2021.[94] ITI, ANSC C63 and Cisco all support adopting the standard and using Options A and B for lab accreditation under ISO/IEC 17025:2017(E).[95] Additionally, Cisco welcomes any transition period up to, and including, the two-year period proposed by the Commission in the *NPRM*.[96]

29. No party opposed our proposal, and for the reasons stated in the *NPRM* and as supported by the record, we continue to believe that that adoption of the updated standard is in the public interest, and will provide greater transparency, procedural efficiency, and flexibility. We therefore incorporate by reference ISO/IEC 17025:2017(E) into sections 2.910, 2.948, 2.949, 2.950, 2.962, and 68.162 of the Commission's rules.[97] To accommodate the transition to this new standard, as proposed in the NPRM, we will permit the use of either ISO/IEC 17025:2005(E) or ISO/IEC 17025:2017(E) for a period of two years following the effective date of the rules adopted in this Order. While both ISO/IEC 17025:2005(E) and ISO/IEC 17025:2017(E) were considered valid during the transition period in effect at the time of the Standards Update PN, accreditations to ISO/IEC 17025:2005(E) became invalid after June 1, 2021. In the Standards Update PN OET proposed to adopt a three-year transition period for use of the proposed updated standard. In consideration of the time that has passed since publication of the Standards Update PN, combined with the facts that our rules require test laboratories to complete the accreditation process every two years and that the prior standard has since become invalid within the standards body, we provide a two-year transition period for compliance with ISO/IEC 17025:2017(E).

### 2. "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz, Amendment 1: Test Site Validation" (ANSI C63.4a-2017)

30. Sections 2.910, 2.948, 2.950, 15.31, 15.35, and 15.38 of our rules reference ANSI 63.4-2014, "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz," as an electromagnetic

[90] *See NPRM* at 9-10, paras. 20-21.

[91] *NPRM* at 10, para. 21.

[92] *NPRM* at 10, para. 22.

[93] A2LA Comments at 1.

[94] A2LA Comments at 1.

[95] Cisco Comments at 3; ANSC C63 Comments at 2; ITI Comments at 2.

[96] Cisco Comments at 3.

[97] 47 CFR §§ 2.910(d)(2), 2.948(e), 2.949(b)(2), 2.950(b), 2.962(c)(3)-(4), (d)(1), 68.162(c)(3)-(4), (i)(1)(i).

compatibility (EMC) measurement standard for unintentional radiators.[98] In late 2017, ANSC C63 published ANSI C63.4a-2017, "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz, Amendment 1: Test Site Validation" (ANSI C63.4a-2017).[99] In the *Standards Update Notice*, OET sought comment on incorporating by reference ANSI C63.4a-2017 in the appropriate rules.[100] Although some commenters supported incorporation of the amended standard,[101] several negative responses were received in this regard.[102] In the *NPRM*, the Commission considered the comments filed pursuant to the *Standards Update Notice* and tentatively concluded that ANSI C63.4-2014 continues to sufficiently address current needs and that incorporation by reference of ANSI C63.4a-2017 into our rules was not warranted at that time.[103]

31. Many commenters in this proceeding support the tentative conclusion made by the Commission in the *NPRM* that ANSI C63.4-2014 continues to sufficiently address current needs and that incorporation by reference of ANSI C63.4a-2017 into our rules is not warranted at this time.[104] In its reply comments, ANSC C63 supports that tentative conclusion but notes that a reference to ANSI C63.4a-2017 in the Commission's rules should be optional and not a requirement because it would "allow labs to meet both Canadian and U.S. requirements with a single site validation test."[105]

32. After further consideration of the information on the record, including the comments from ET Docket No. 19-48, we affirm the Commission's tentative determination that ANSI C63.4-2014 continues to sufficiently address current needs and continue to retain the incorporation by reference into our rules of ANSI C63.4-2014. However, we recognize that ANSI C63.4a-2017 introduced modifications to the normalized site attenuation procedures for validating radiated test sites for use in the 30 MHz to 1 GHz frequency range. Some of these modifications involve a new acceptable test distance (five meters) and an expanded test volume to accommodate devices with heights that exceed two meters. As noted in the *NPRM*, several parties objected to making this a mandatory requirement because of cost concerns over the potential need to redesign and retrofit existing test facilities. However, we also recognize that in some cases these modifications may be necessary to accommodate testing of larger devices. In addition, Innovation, Science and Economic Development Canada (ISED)—a department of the Government of Canada—has adopted the amended standard.[106] We also affirm our Office of Engineering and Technology's acceptance of the use of this standard as an alternative pursuant to *KDB 414788 D01*

[98] 47 CFR §§ 2.910, 2 .948, 2.950, 15.31, 15.35, 15.38.

[99] *Standards Update Notice*, 34 FCC Rcd at 1904-05.

[100] *Id.*

[101] *E.g.*, Consumer Technology Comments and Sony Electronics Comments in ET Docket No. 19-148.

[102] The comments generally cited costs associated with the procedure and stating that there were no problems with existing procedures that warrant adopting an alternative procedure. *See* ET Docket No. 19-48, International Business Machines Corporation Comments at 3-4 and Teradata Corporation Comments at 2. Further, it is our understanding that ANSC C63 has made substantial progress toward addressing these and other controversial issues in a pending modification. *See*, "Status of C63® Standards Date: July 23, 2021," http://www.c63.org/documents/misc/matrix/c63_standards.htm#C63_4.

[103] *NPRM* at 11, para. 24.

[104] *See* ANSC C63 Reply Comments at 3, Cisco Comments at 1, ITI Comments at 2.

[105] ANSC C63 Reply Comments at 3.

[106] Government of Canada, *Normative Test Standards and Acceptable Alternate Procedures*, https://ised-isde.canada.ca/site/certification-engineering-bureau/en/wireless-program/normative-test-standards-and-acceptable-alternate-procedures, (last visited Feb. 14, 2023).

*Radiated Test Site v01r01*.[107] Therefore, to accommodate testing of larger devices (greater than two meters in height) and to allow for harmonization with ISED requirements, we adopt ANSI C63.4a-2017 through incorporation by reference. By retaining the existing standards and also adopting the modified standard, we provide two options for an electromagnetic compatibility (EMC) measurement standard for unintentional radiators to accommodate the improvements where they are most needed and retain the status quo for testing that would not benefit from the updates.

### 3. Additional Updates

33. In the *NPRM*, the Commission noted that several part 2 rules incorporate references that have become outdated as a result of prior updates to standards that were phased in over specific transition periods — once the newer standards became the only valid procedure for compliance with the Commission's rules, the prior references became irrelevant.[108] Specifically, the Commission proposed to delete from section 2.910 of the Commission's rules references to: ISO/IEC Guide 58:1993(E), "Calibration and testing laboratory accreditation systems—General requirements for operation and recognition," First Edition 1993; ISO/IEC Guide 61:1996(E), "General requirements for assessment and accreditation of certification/registration bodies," First Edition 1996; and ISO/IEC Guide 65:1996(E), "General requirements for bodies operating product certification systems."[109] Additionally, we proposed to delete the related transition periods provided in section 2.950 and make any necessary related administrative rule changes.[110] The Commission also asked whether there were additional conforming or administrative updates to our rules and if any other rule modifications were needed, including updating other standards currently referenced in the rules or incorporating by reference additional standards not currently referenced in the rules.[111]

34. In its comments, ITI notes that sections 15.38(b) and 15.109(g) still reference CISPR 22 and requested that these references be updated to the latest edition of CISPR 32.[112] ITI also recommends that a specific statement permitting grandfathering would benefit the industry, avoid confusion, and facilitate compliance.[113] Cisco supports these additional updates.[114] Additionally, ANSC C63 also points out that "the proposed amendment to Rule 2.910 references CISPR 16-1-4:2010-04, however, that version of the standard is out of date" and the rule "should reference the current version of the standard which is CISPR 16-1-4 2019+AMD:2020."[115]

35. Absent any opposition in the record, we adopt the Commission's proposals to delete references to: ISO/IEC Guide 58:1993(E), First Edition 1993; ISO/IEC Guide 61:1996(E), First Edition 1996; and ISO/IEC Guide 65:1996(E) from section 2.910 of the Commission's rules. Additionally, we adopt the proposal to delete the related transition periods provided in section 2.950. The commenter recommendations to update additional references were not contemplated in the Commission's proposal, and we therefore take no action here.

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[107] FCC Office of Engineering and Technology Laboratory Division, *Test Sites for Radiated Emission Measurements* (July 12, 2018), https://apps.fcc.gov/oetcf/kdb/forms/FTSSearchResultPage.cfm?switch=P&id=20539.

[108] *NPRM* at 11, para. 25 (citing 47 CFR §§ 2.910, 2.950).

[109] *Id.* (citing 47 CFR § 2.910).

[110] *Id.* (citing 47 CFR § 2.950).

[111] *NPRM* at 12, para. 26.

[112] ITI Comments at 3.

[113] ITI Comments at 3.

[114] Cisco Comments at 4.

[115] ANSC C63 Reply at 2; *see also* Dennis Swanson Comments at 1.

## IV. PROCEDURAL MATTERS

36. *Regulatory Flexibility Act.* The Regulatory Flexibility Act of 1980, as amended (RFA),[116] requires that an agency prepare a regulatory flexibility analysis for notice and comment rulemakings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."[117] Accordingly, we have prepared a Final Regulatory Flexibility Analysis (FRFA) concerning the possible impact of the rule changes and/or policy contained in this Report and Order on small entities. The FRFA is set forth in Appendix B.

37. *Paperwork Reduction Act*. This document does not contain new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law No. 104-13. In additional, therefore, it does not contain any new or modified information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4).

38. *Congressional Review Act*. The Commission has determined, and the Administrator of the Office of Information and Regulatory Affairs, Office of Management and Budget, concurs, that this rule is non-major under the Congressional Review Act, 5 U.S.C. § 804(2). The Commission will send a copy of this Report & Order, etc. to Congress and the Government Accountability Office pursuant to 5 U.S.C. § 801(a)(1)(A).

39. *Further Information*. For further information, contact Jamie Coleman of the Office of Engineering and Technology, at 202-418-2705 or Jamie.Coleman@fcc.gov.

## V. ORDERING CLAUSES

40. Accordingly, IT IS ORDERED, pursuant to the authority found in sections 4(i), 301, 302, and 303 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 301, 302a, 303, that this Report and Order IS HEREBY ADOPTED.

41. IT IS FURTHER ORDERED that the amendments of parts 2, 15, 68, and 73 of the Commission's rules as set forth in Appendix A ARE ADOPTED, effective 30 days after publication in the Federal Register.

42. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

43. IT IS FURTHER ORDERED that the Office of the Managing Director, Performance Evaluation and Records Management, SHALL SEND a copy of this Report and Order in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, 5 U.S.C. § 801(a)(1)(A).

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

[116] *See* 5 U.S.C. § 604. The RFA, 5 U.S.C. §§ 601-12, was amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[117] 5 U.S.C. § 605(b).

## APPENDIX A

## FINAL RULES

For the reasons set forth in the preamble, the Federal Communications Commission amends part 2, part 15, part 68, and part 73 of Title 47 of the Code of Federal Regulations as follows:

**Part 2 – Frequency Allocations and Radio Treaty Matters; General Rules and Regulations**

1. The authority citation for part 2 continues to read as follows:

**Authority:** 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Amend § 2.910 by redesignating paragraph (c)(3), adding paragraph (c)(3) and revising paragraphs (b)(1), (c)(1)-(2), and (d)(1)-(4) to read as follows:

**§ 2.910 Incorporation by Reference.**

* * * * *

(b) * * *

(1) CISPR 16-1-4:2010-04: "Specification for radio disturbance and immunity measuring apparatus and methods — Part 1-4: Radio disturbance and immunity measuring apparatus — Antennas and test sites for radiated disturbance measurements," Edition 3.0, 2010-04, IBR approved for § 2.948(d).

* * * * *

(c) * * *

(1) ANSI C63.4-2014: "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz," ANSI approved June 13, 2014, Sections 5.4.4 through 5.5, IBR approved for § 2.948(d).

(2) ANSI C63.4a-2017: "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz, Amendment 1: Test Site Validation," ANSI approved October 13, 2017, IBR approved for § 2.948(d).

(3) ANSI C63.25.1–2018, "American National Standard Validation Methods for Radiated Emission Test Sites, 1 GHz to 18 GHz," ANSI approved December 17, 2018, IBR approved for § 2.948(d).

* * * * *

(d) * * *

(1) ISO/IEC 17011:2004(E), "Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies," First Edition, 2004-09-01, IBR approved for §§ 2.948(e), 2.949(b), and 2.960(c).

(2) ISO/IEC 17025:2005(E), "General requirements for the competence of testing and calibration laboratories," Second Edition, 2005-05-15, IBR approved for §§ 2.948(e), 2.949(b), 2.950(a), and 2.962(c) and (d).

(3) ISO/IEC 17025:2017(E), "General requirements for the competence of testing and calibration laboratories," Third Edition, November 2017, IBR approved for §§ 2.948(e), 2.949(b), 2.950(a), and 2.962(c) and (d).

(4) ISO/IEC 17065:2012(E), "Conformity assessment — Requirements for bodies certifying products, processes and services," First Edition, 2012-09-15, IBR approved for §§ 2.960(b), 2.962(b), (c), (d), (f), and (g).

3. Amend § 2.948 by revising paragraph (d) to read as follows:

**§ 2.948 Measurement facilities.**

* * * * *

(d) When the measurement method used requires the testing of radiated emissions on a validated test site, the site attenuation must comply with either: the requirements of ANSI C63.4a-2017 or the requirements of sections 5.4.4 through 5.5 of the following procedure: ANSI C63.4–2014 (incorporated by reference, see § 2.910).

(1) Measurement facilities used to make radiated emission measurements from 30 MHz to 1 GHz must comply with the site validation requirements in either ANSI C63.4a-2017 or ANSI C63.4–2014 (clause 5.4.4);

(2) Measurement facilities used to make radiated emission measurements from 1 GHz to 18 GHz must comply with the site validation requirement of ANSI C63.25.1-2018;

(3) Measurement facilities used to make radiated emission measurements from 18 GHz to 40 GHz must comply with the site validation requirement of ANSI C63.4–2014 (clause 5.5.1 a) 1)), such that the site validation criteria called out in CISPR 16–1–4:2010–04 (incorporated by reference, see § 2.910) is met.

(4) Test site revalidation must occur on an interval not to exceed three years.

* * * * *

4. Revise § 2.950 to read as follows:

**§ 2.950 Transition periods.**

(a) Prior to [INSERT DATE 2 YEARS AFTER EFFECTIVE DATE OF FINAL RULE], a prospective accredited testing laboratory must be capable of meeting the requirements and conditions of ISO/IEC 17025:2005(E) (incorporated by reference, see § 2.910) or ISO/IEC 17025:2017(E) (incorporated by reference, see § 2.910). On or after [INSERT DATE 2 YEARS AFTER EFFECTIVE DATE OF FINAL RULE], a prospective accredited testing laboratory must be capable of meeting the requirements and conditions of ISO/IEC 17025:2017(E) (incorporated by reference, see § 2.910).

(b) All radio frequency devices that were authorized under the verification or Declaration of Conformity procedures prior to November 2, 2017, must continue to meet all requirements associated with the applicable procedure that were in effect immediately prior to November 2, 2017. If any changes are made to such devices after November 2, 2018, the requirements associated with the Supplier's Declaration of Conformity apply.

**Part 15 – Radio Frequency Devices**

5. The authority citation for part 15 continues to read as follows:

**Authority:** 47 U.S.C. 154, 302a, 303, 304, 307, 336, 544a, and 549.

6. Amend § 15.31 by revising paragraph (a)(3) to read as follows:

**§ 15.31 Measurement standards.**

(a) * * *

* * * * *

(3) Other intentional radiators must be measured for compliance using the following procedure: ANSI C63.10-2020 (incorporated by reference, see § 15.38).

* * * * *

7. Amend § 15.37 by adding paragraph (r) to read as follows

**§ 15.37 Transition provisions for compliance with this part.**

* * * * *

(r) Prior to [INSERT DATE 2 YEARS AFTER EFFECTIVE DATE OF FINAL RULE], measurements for intentional radiators subject to § 15.31(a)(3) must be made using the procedures in ANSI C63.10–2013 or ANSI C63.10–2020 (incorporated by reference, see § 15.38). On or after [INSERT DATE 2 YEARS AFTER EFFECTIVE DATE OF FINAL RULE], measurements for intentional radiators subject to § 15.31(a)(3) must be made using the procedures in ANSI C63.10–2020 (incorporated by reference, see § 15.38).

8. Amend § 15.38 by adding paragraph (g)(4) to read as follows:

**§ 15.38 Incorporation by Reference.**

* * * * *

(g) * * *

* * * * *

(4) ANSI C63.10–2020, "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices," ANSI approved September 10, 2020, IBR approved for § 15.31(a)(3).

* * * * *

**Part 68 – Connection of Terminal Equipment to the Telephone Network**

9. The authority citation for part 68 continues to read as follows:

**Authority:** 47 U.S.C. 154, 303, 610.

10. Amend § 68.162 by revising paragraph (d)(1) and paragraph (i)(1)(i) to read as follows:

**§ 68.162 Requirements for Telecommunication Certification Bodies.**

* * * * *

(d) * * *

(1) In accordance with the provisions of ISO/IEC 17065 the evaluation of a product, or a portion thereof, may be performed by bodies that meet the applicable requirements of ISO/IEC 17025 and ISO/IEC 17065, in accordance with the applicable provisions of ISO/IEC 17065, for external resources (outsourcing) and other relevant standards. Evaluation is the selection of applicable requirements and the determination that those requirements are met. Evaluation may be performed by using internal TCB resources or external (outsourced) resources.

* * * * *

(i) * * *

(1) * * *

(i) ISO/IEC 17025:2017(E), "General requirements for the competence of testing and calibration laboratories," Third Edition, November 2017, IBR approved for § 68.162(d).

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**Part 73 – Radio Broadcast Services**

11. The authority citation for part 73 continues to read as follows:

**Authority:** 47 U.S.C. 154, 155, 301, 303, 307, 309, 310, 334, 336, 339.

12. Amend § 73.1660 by revising Note 1 to paragraph (a)(1) to read as follows:

**§ 73.1660 Acceptability of broadcast transmitters.**

* * * * *

Note 1 to paragraph (a)(1): The verification procedure has been replaced by Supplier's Declaration of Conformity. AM, FM, and TV transmitters previously authorized under subpart J of part 2 of this chapter may remain in use. See § 2.950 of this chapter.

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## APPENDIX B

## Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[118] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rule Making* (NPRM) released in January 2022 in this proceeding.[119] The Commission sought written public comment on the proposals in the NPRM, including comment on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[120]

### A. Need for, and Objective of, the *Report and Order*

2. The Commission's actions in the *Report and Order* are targeted updates to our rules limited to the incorporation by reference (IBR) of four new and updated standards that are integral to equipment testing. IBR is the process federal agencies use when referring to materials published elsewhere to give those materials the same force and effect of law in the Code of Federal Regulations as if the materials' text had actually been published in the Federal Register. By using IBR, we are able to give effect to technical instructions, testing methodologies, and other process documents that are developed and owned by standards development organizations. Referencing these documents in our rules substantially reduces the volume of material and also permits us to more efficiently implement updated standards because we only have to update our reference instead of making substantial modifications to our rules.

3. In the *Report and Order*, we address two petitions filed by the American National Standards Institute, Accredited Standards Committee (ASC) C63: one seeking to reference a new standard in our rules pertaining to test site validation; and one proposing to incorporate a newer version of a currently referenced standard that addresses a variety of compliance testing requirements. We also update and clarify the status of two standards for which the Office of Engineering and Technology (OET) previously sought comment. Specifically, to maintain the high level of compliance and minimal interference from RF devices, it is essential that our equipment authorization (EA) program incorporates current applicable compliance standards. Therefore, the Commission modifies certain Commission rules to reflect more recent standards that apply to the EA testing procedures necessary to demonstrate compliance with the Commission's RF device rules.

### B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

4. There were no comments filed that specifically address the proposed rules and policies presented in the IRFA. However, Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC (Joint Commenters) express concerns related to "the public availability and accessibility of documents that are proposed to be incorporated by reference into law."[121] Joint Commenters claim that the materials subject to IBR should be broadly available to members of the public on a free and unrestricted basis (e.g., in a format that can be easily copied without cost), that the standards documents were not made available in this manner during the rulemaking process, and that our failure to do so was "illegal and arbitrary."[122]

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[118] 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[119] *Updating References to Standards Related to the Commission's Equipment Authorization Program; Modifying the Equipment Authorization Rules to Reflect the Updated Versions of the Currently Referenced ANSI C63.4 and ISO/IEC 17025 Standards*, ET Docket Nos. 21-363, 19-48, Notice of Proposed Rulemaking, FCC 22-3 (Jan. 25, 2022) (*NPRM*).

[120] *See* 5 U.S.C. § 604.

[121] Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC Comments at 3.

[122] *Id*. at 4-5.

Joint Commenters are also concerned that the accessibility of the relevant materials is often limited by what it characterizes as onerous conditions put in place by the associated private entities.[123] We disagree with Joint Commenters' assertion that parties could not "see" or "have access to the text of the standards" such that they could not meaningfully participate in the rulemaking process[124] and assert the materials proposed to be incorporated by reference have been made reasonably available. We are not aware of any party that desired to inspect the materials but was unable to do so due to difficulties in traveling to the specified inspection site. Further, none of the comments filed in the proceeding that were related to the technical merits of the proposed standards incorporations identified any impediments to finding and accessing the standards under consideration.

5. Moreover, we explicitly reject the Joint Commenters' assertion that our actions will be inconsistent with established law and policy balancing the public interest in promoting the development of and reliance on voluntary standards against the need for public access to any such standards incorporated by reference by federal agencies. Collectively, these resources are more than sufficient to permit interested parties to accomplish the objectives identified by the Joint Commenters, including use of the standards by people who fix and evaluate equipment and make new things for understanding how the devices work and identifying whether they are working properly.[125] We acknowledge that there may be individual limitations to access mechanisms (e.g., cost, travel for in-person inspection, limitations on how the materials may be downloaded, shared, or otherwise used) that would not exist if the standards were made available "on a public website without charge, and without limitation of use" as the Joint Commenters request,[126] none of these limitations would prevent interested parties from accessing and using the standards we are adopting.

### C. Response to Comments by the Chief Counsel for Advocacy of the Small Business Administration

6. Pursuant to the Small Business Jobs Act of 2010, which amended the RFA, the Commission is required to respond to any comments filed by the Chief Counsel of Advocacy of the Small Business Administration (SBA), and to provide a detailed statement of any change made to the proposed rules as a result of those comments.[127]

7. The Chief Counsel did not file any comments in response to the proposed rules in this proceeding.

### D. Description and Estimate of the Number of Small Entities to Which Rules Will Apply

8. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the rules adopted herein.[128] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[129] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[130] A "small business

[123] *Id*. at 9-10.

[124] Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC Comments at 8.

[125] Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC Comments at 6-7.

[126] Public Resource Org. Inc., iFixit, Inc., and Make Community, LLC Comments at 12..

[127] 5 U.S.C. § 604 (a)(3).

[128] *Id.* § 604 (a)(4).

[129] 5 U.S.C. § 601(6).

[130] *Id*. § 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, (continued….)

concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[131]

9. *Small Businesses, Small Organizations, Small Governmental Jurisdictions*. Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe, at the outset, three broad groups of small entities that could be directly affected herein.[132] First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the Small Business Administration's (SBA) Office of Advocacy, in general a small business is an independent business having fewer than 500 employees.[133] These types of small businesses represent 99.9% of all businesses in the United States, which translates to 32.5 million businesses.[134]

10. Next, the type of small entity described as a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[135] The Internal Revenue Service (IRS) uses a revenue benchmark of $50,000 or less to delineate its annual electronic filing requirements for small exempt organizations.[136] Nationwide, for tax year 2020, there were approximately 447,689 small exempt organizations in the U.S. reporting revenues of $50,000 or less according to the registration and tax data for exempt organizations available from the IRS.[137]

11. Finally, the small entity described as a "small governmental jurisdiction" is defined generally as "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[138] U.S. Census Bureau data from the 2017 Census

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after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[131] 15 U.S.C. § 632.

[132] *See* 5 U.S.C. § 601(3)-(6).

[133] *See* SBA, Office of Advocacy, Frequently Asked Questions, "What is a small business?," https://cdn.advocacy.sba.gov/wp-content/uploads/2021/11/03093005/Small-Business-FAQ-2021.pdf. (Nov 2021).

[134] *Id*.

[135] *See* 5 U.S.C. § 601(4).

[136] The IRS benchmark is similar to the population of less than 50,000 benchmark in 5 U.S.C § 601(5) that is used to define a small governmental jurisdiction. Therefore, the IRS benchmark has been used to estimate the number small organizations in this small entity description. S*ee* Annual Electronic Filing Requirement for Small Exempt Organizations – Form 990-N (e-Postcard), "Who must file," https://www.irs.gov/charities-non-profits/annual-electronic-filing-requirement-for-small-exempt-organizations-form-990-n-e-postcard. We note that the IRS data does not provide information on whether a small exempt organization is independently owned and operated or dominant in its field.

[137] *See* Exempt Organizations Business Master File Extract (EO BMF), "CSV Files by Region," https://www.irs.gov/charities-non-profits/exempt-organizations-business-master-file-extract-eo-bmf. The IRS Exempt Organization Business Master File (EO BMF) Extract provides information on all registered tax-exempt/non-profit organizations. The data utilized for purposes of this description was extracted from the IRS EO BMF data for businesses for the tax year 2020 with revenue less than or equal to $50,000 for Region 1-Northeast Area (58,577), Region 2-Mid-Atlantic and Great Lakes Areas (175,272), and Region 3-Gulf Coast and Pacific Coast Areas (213,840) that includes the continental U.S., Alaska, and Hawaii. This data does not include information for Puerto Rico.

[138] *See* 5 U.S.C. § 601(5).

of Governments[139] indicate there were 90,075 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States.[140] Of this number, there were 36,931 general purpose governments (county,[141] municipal, and town or township[142]) with populations of less than 50,000 and 12,040 special purpose governments—independent school districts[143] with enrollment populations of less than 50,000.[144] Accordingly, based on the 2017 U.S. Census of Governments data, we estimate that at least 48,971 entities fall into the category of "small governmental jurisdictions."[145]

12. *Radio Frequency Equipment Manufacturers (RF Manufacturers)*. There are several analogous industries with an SBA small business size standard that are applicable to RF Manufacturers. These industries are Fixed Microwave Services, Other Communications Equipment Manufacturing, and Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. A description of these industries and the SBA small business size standards are detailed below.

13. *Fixed Microwave Services*. Fixed microwave services include common carrier,[146] private-operational fixed,[147] and broadcast auxiliary radio services.[148] They also include the Upper

[139] *See* 13 U.S.C. § 161. The Census of Governments survey is conducted every five (5) years compiling data for years ending with "2" and "7." *See also* Census of Governments, https://www.census.gov/programs-surveys/cog/about.html.

[140] *See* U.S. Census Bureau, 2017 Census of Governments – Organization Table 2. Local Governments by Type and State: 2017 [CG1700ORG02], https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html. Local governmental jurisdictions are made up of general purpose governments (county, municipal and town or township) and special purpose governments (special districts and independent school districts). *See also* tbl.2. CG1700ORG02 Table Notes Local Governments by Type and State_2017.

[141] *See id.* at tbl.5. County Governments by Population-Size Group and State: 2017 [CG1700ORG05], https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html. There were 2,105 county governments with populations less than 50,000. This category does not include subcounty (municipal and township) governments.

[142] *See id.* at tbl.6. Subcounty General-Purpose Governments by Population-Size Group and State: 2017 [CG1700ORG06], https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html. There were 18,729 municipal and 16,097 town and township governments with populations less than 50,000.

[143] *See id.* at tbl.10. Elementary and Secondary School Systems by Enrollment-Size Group and State: 2017 [CG1700ORG10], https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html. There were 12,040 independent school districts with enrollment populations less than 50,000. *See also* tbl.4. Special-Purpose Local Governments by State Census Years 1942 to 2017 [CG1700ORG04], CG1700ORG04 Table Notes_Special Purpose Local Governments by State Census Years 1942 to 2017.

[144] While the special purpose governments category also includes local special district governments, the 2017 Census of Governments data does not provide data aggregated based on population size for the special purpose governments category. Therefore, only data from independent school districts is included in the special purpose governments category.

[145] This total is derived from the sum of the number of general purpose governments (county, municipal and town or township) with populations of less than 50,000 (36,931) and the number of special purpose governments - independent school districts with enrollment populations of less than 50,000 (12,040), from the 2017 Census of Governments - Organizations tbls.5, 6 & 10.

[146] *See* 47 CFR pt. 101, subpts. C and I.

[147] *See id*. subpts. C and H.

[148] Auxiliary Microwave Service is governed by part 74 of Title 47 of the Commission's Rules. *See* 47 CFR pt. 74. Available to licensees of broadcast stations and to broadcast and cable network entities, broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between

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Microwave Flexible Use Service (UMFUS),[149] Millimeter Wave Service (70/80/90 GHz),[150] Local Multipoint Distribution Service (LMDS),[151] the Digital Electronic Message Service (DEMS),[152] 24 GHz Service,[153] Multiple Address Systems (MAS),[154] and Multichannel Video Distribution and Data Service (MVDDS),[155] where in some bands licensees can choose between common carrier and non-common carrier status.[156] Wireless Telecommunications Carriers (except Satellite)[157] is the closest industry with an SBA small business size standard applicable to these services. The SBA small size standard for this industry classifies a business as small if it has 1,500 or fewer employees.[158] U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.[159] Of this number, 2,837 firms employed fewer than 250 employees.[160] Thus, under the SBA size standard, the Commission estimates that a majority of fixed microwave service licensees can be considered small.

14. The Commission's small business size standards with respect to fixed microwave services involve eligibility for bidding credits and installment payments in the auction of licenses for the various frequency bands included in fixed microwave services. When bidding credits are adopted for the auction of licenses in fixed microwave services frequency bands, such credits may be available to several types of small businesses based average gross revenues (small, very small and entrepreneur) pursuant to the competitive bidding rules adopted in conjunction with the requirements for the auction and/or as identified in part 101 of the Commission's rules for the specific fixed microwave services frequency bands.[161]

15. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to

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two points such as a main studio and an auxiliary studio. The service also includes mobile TV pickups, which relay signals from a remote location back to the studio.

[149] *See* 47 CFR pt. 30.

[150] *See* 47 CFR pt. 101, subpt. Q.

[151] *See id*. subpt. L.

[152] *See id*. subpt. G.

[153] *See id*.

[154] *See id.* subpt. O.

[155] *See id*. subpt. P.

[156] *See* 47 CFR §§ 101.533, 101.1017.

[157] *See* U.S. Census Bureau, *2017 NAICS Definition,* "*517312 Wireless Telecommunications Carriers* (*except Satellite*)," https://www.census.gov/naics/?input=517312&year=2017&details=517312.

[158] *See* 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

[159] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIRM, NAICS Code 517312, https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIRM&hidePreview=false.

[160] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[161] *See* 47 CFR §§ 101.538(a)(1)-(3), 101.1112(b)-(d), 101.1319(a)(1)-(2), 101.1429(a)(1)-(3).

estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

16. *Other Communications Equipment Manufacturing*. This industry comprises establishments primarily engaged in manufacturing communications equipment (except telephone apparatus, and radio and television broadcast, and wireless communications equipment).[162] Examples of such manufacturing include fire detection and alarm systems manufacturing, Intercom systems and equipment manufacturing, and signals (e.g., highway, pedestrian, railway, traffic) manufacturing.[163] The SBA small business size standard for this industry classifies as small firms having 750 or fewer employees.[164] For this industry, U.S. Census Bureau data for 2017 shows that 321 firms operated for the entire year.[165] Of that number, 310 firms operated with fewer than 250 employees.[166] Based on this data, we conclude that the majority of Other Communications Equipment Manufacturers are small.

17. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing*. This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment.[167] Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.[168] The SBA small business size standard for this industry classifies as small businesses having 1,250 employees or less.[169] U.S. Census Bureau data for 2017 show that there were 656 firms in this industry that operated for the entire year.[170] Of this number, 624 firms had fewer than 250 employees.[171] Based on this data, we conclude that a majority of manufacturers in this industry are small.

### E. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

18. The Commission's equipment authorization rules incorporate by reference various standards[172] that have been established by standards-setting bodies including, but not limited to, the

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[162] *See* U.S. Census Bureau, *2017 NAICS Definitions, "334290 Other Communications Equipment Manufacturing,*" https://www.census.gov/naics/?input=334290&year=2017&details=334290.

[163] *Id.*

[164] *See* 13 CFR 121.201, NAICS Code 334290.

[165] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Selected Sectors: Employment Size of Firms for the U.S.: 2017,* Table ID: EC1700SIZEEMPFIRM, NAICS Code 334290, https://data.census.gov/cedsci/table?y=2017&n=334290&tid=ECNSIZE2017.EC1700SIZEEMPFIRM&hidePreview=false.

[166] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[167] *See* U.S. Census Bureau, *2017 NAICS Definition*, "*334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing*," https://www.census.gov/naics/?input=334220&year=2017&details=334220.

[168] *Id*.

[169] *See* 13 CFR § 121.201, NAICS Code 334220.

[170] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Employment Size of Firms for the U.S.: 2017,* Table ID: EC1700SIZEEMPFIRM, NAICS Code 334220, https://data.census.gov/cedsci/table?y=2017&n=334220&tid=ECNSIZE2017.EC1700SIZEEMPFIRM&hidePreview=false.

[171] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

American National Standards Institute, Accredited Standards Committee (ASC) C63;[173] the International Organization for Standardization; and the International Electrotechnical Commission.[174] Compliance testing is central to the equipment authorization program. Section 2.947 of the Commission's rules requires test data be measured in accordance with one of three types of standards and measurement procedures, including "[t]hose acceptable to the Commission and published by national engineering societies such as the Electronic Industries Association, the Institute of Electrical and Electronic[s] Engineers, Inc., and the American National Standards Institute."[175] Accordingly, we have incorporated by reference such standards into our rules when appropriate; use of these standards is intended to ensure the integrity of the measurement data associated with an equipment authorization.

19. The Commission cannot, at present, definitively quantify the cost of compliance and cannot determine whether small entities will have to hire attorneys, engineers, consultants, or other professionals when using the standards adopted in the *Report and Order* to comply with the Commission's rules. However, while we acknowledge the Joint Commenters have requested free and unrestricted access to relevant materials, we also reiterate that such an approach, if implemented, would pose a burden to test laboratories, manufacturers and other businesses that could possibly qualify as small entities because the inability to continue to use the incorporation by reference process could jeopardize our ability to recognize state-of-the-art technical standards that have been adopted and are frequently updated through the consensus-driven standards development process. We believe the adopted approach best accomplishes the Commission's stated goals

### F. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered

20. The RFA requires an agency to provide, "a description of the steps the agency has taken to minimize the significant economic impact on small entities…including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected."

21. In the *Report and Order*, the adopted standards are integral to the equipment authorization program. In response to advancements in technologies and measurement capabilities, standards bodies periodically update their standards or adopt new standards to reflect best practices. Our updates here are based on such developments, as further informed by petitions for rulemaking filed with the Commission.

22. The adopted rules potentially minimize economic impact concerns for small entities raised by the Joint Commenters by allowing the opportunity in some cases for entities to obtain standards information at no cost, by using a read-only format, as an alternative to purchasing copies of the standards.

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[172] *See*, *e.g.*, 47 CFR §§ 2.910, 2.950, 15.38.

[173] American National Standards Institute, Accredited Standards Committee (ASC) C63 is a standards organization that is responsible for developing electromagnetic compatibility (EMC) measurement standards and testing procedures. ASC C63's standards are published by the American National Standards Institute under the ANSI nomenclature. The Commission's rules have referenced various versions of ASC C63-originated standards for more than a quarter century.

[174] The International Organization for Standardization (ISO) is an independent, non-governmental international organization that develops voluntary international standards, see https://www.iso.org/home.html. The International Electrotechnical Commission (IEC) develops international standards for all electrical, electronic, and related technologies. *See* https://www.iec.ch.

[175] 47 CFR § 2.947(a)(2).

23. In addition, the *Report and Order* provides a revision of the part 2 rules by incorporating standards by the American National Standards Institute (ANSI), Accredited Standards Committee C63 (ASC C63), the International Organization for Standardization, and the International Electrotechnical Commission. Use of these standards is intended to ensure the integrity of the measurement data associated with an equipment authorization. These standards provide procedures for conducting measurements at testing facilities and specify the conditions expected in the testing environment. Moreover, the adoption of these industry standards establishes a uniform framework while not imposing additional burdens for small entities seeking equipment authorizations that different standards could impose. Further, referencing these documents in our rules in accordance with guidelines established by the Office of the Federal Register substantially reduces the volume of material that we otherwise would have to publish in the Federal Register and the CFR and would benefit small entities through increased efficiency in their ability to locate the information they need.

### G. Report to Congress

24. The Commission will send a copy of the *Report and Order*, including this FRFA, in a report to Congress pursuant to the Congressional Review Act.[176] In addition, the Commission will send a copy of the *Report and Order*, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the *Report and Order*, and FRFA (or summaries thereof) will also be published in the Federal Register.[177]

[176] *See* 5 U.S.C. § 801(a)(1)(A).

[177] *See* 5 U.S.C. § 604(b).